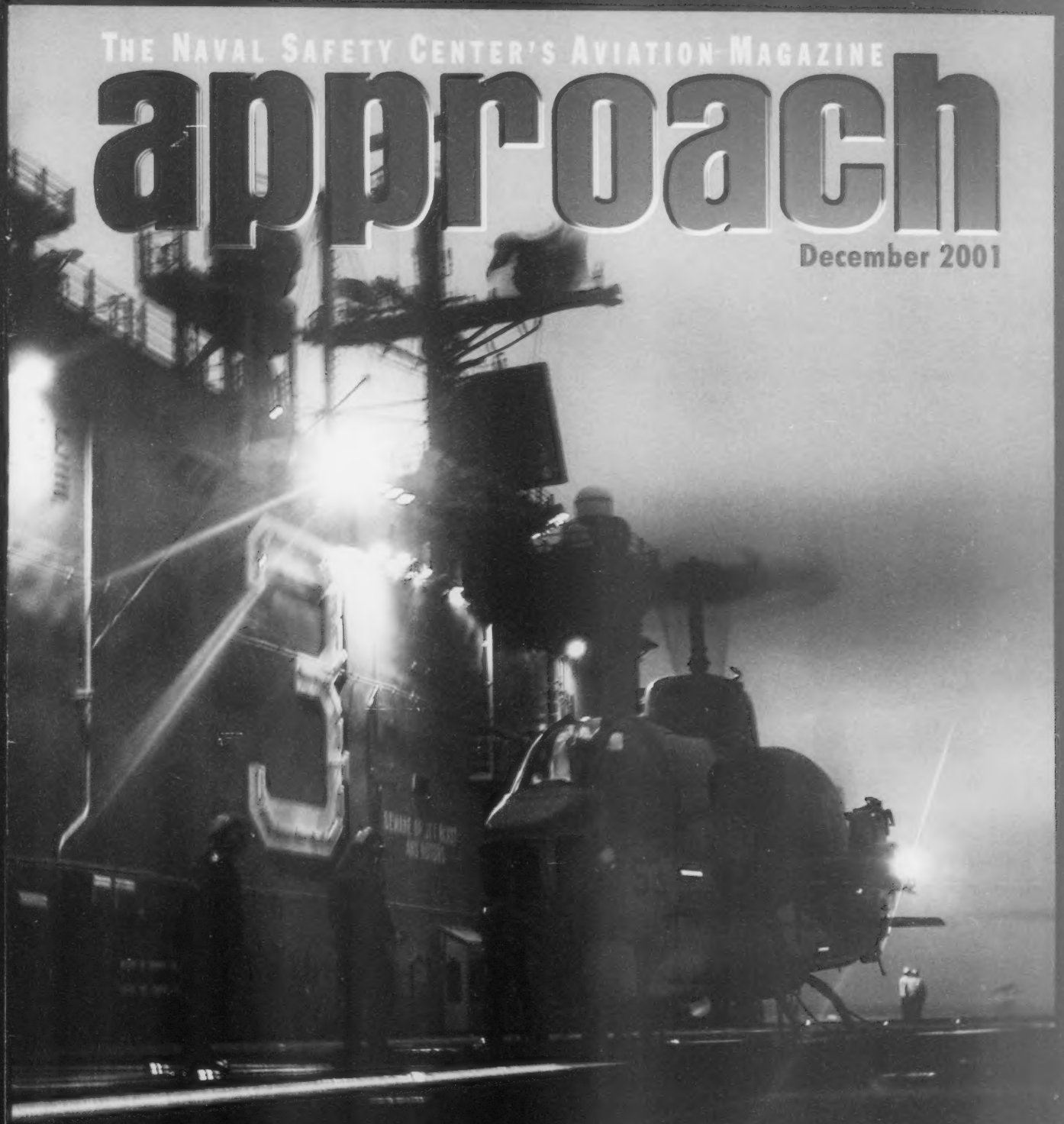
THE NAVAL SAFETY CENTER'S AVIATION MAGAZINE

approach

December 2001



Las Vegas or Bust!

Going MAD

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On the cover: An AH-1 Cobra attack helicopter is refueled during flight operations aboard the amphibious warfare ship USS *Belleau Wood*. Photograph by PH3 Sean C. Ryan.

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Norfolk, VA 23511-4399

Approach (ISSN 1094-0405) is published monthly by the Commander, Naval Safety Center, 375 A Street, Norfolk, VA 23511-4399. *Approach* contents should not be considered directive and may not be construed as incriminating under Article 31 of the Uniform Code of Military Justice. Views expressed in guest-written articles are not necessarily those of the Naval Safety Center. *Approach* is available for sale by the Superintendent of Documents, P.O. Box 371954, Pittsburgh, PA 15250-7954. Subscription price: $47 domestic, $58.75 foreign per year. Telephone credit card orders can be made 8 a.m. to 4 p.m. Eastern time at (202) 512-1800. Periodicals postage paid at Norfolk, VA and additional mailing offices.

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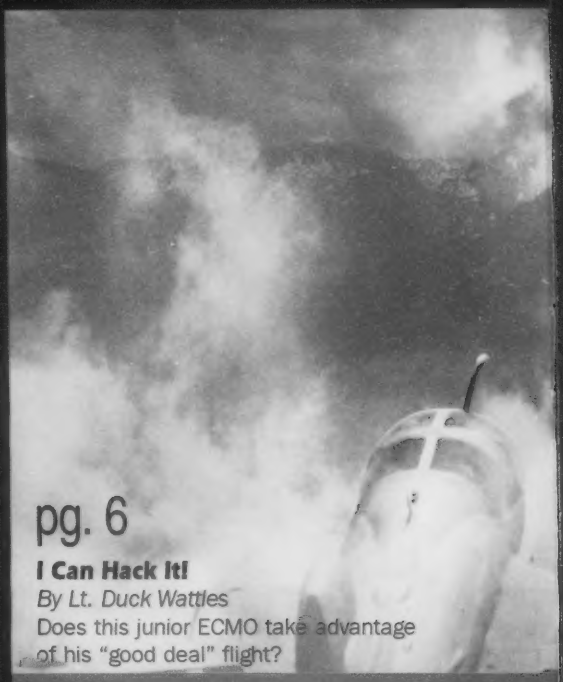

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LAS VEGAS

By Lt. Tony Rodgers

It was my first Red Flag exercise, and I was looking forward to getting to Vegas. I had heard all the stories about bright lights, big city, and lots of parties. Of course, the flying was supposed to be fun, too. Our plan was to take off early from Whidbey, as a division of three Prowlers. I was in the back seat of Dash 3 with a disgruntled senior pilot who had been relegated to the back because the skipper thought the junior pilots could use the experience. To add insult to injury, the skipper was flying our jet. My pilot buddy just wanted to get this over with and get out of the back seat.

The first two aircraft did a section go, and we followed 10 seconds later. As the skipper climbed away from the deck, he raised the gear, and we were off to Las Vegas. We quickly realized we weren't going anywhere when the skipper announced we had a barber-poled nose-gear indication. The lead section quickly was leaving us behind, as we remained below gear speed. The lead section was sent on as we transitioned our aircraft to a good three-down-and-locked indication. We would land, get the problem fixed, and be right behind them. After all, it was probably just a stuck microswitch, no big deal.

I was quizzing my salty-pilot guest about how long it would take to change out a microswitch. He assured me we easily would get to Las Vegas by early afternoon. The crew worked through the unsafe-gear checklist and came to the step that called for an arrested landing. We dumped fuel to lighten the aircraft.

In the back seat, my buddy and I were grumbling about the added delay of an arrested landing. Furthermore, we had to wait for an LSO to get on station—another 20 minutes—as we proceeded to circle offshore. This really was cutting into my gambling time. Finally, when the LSO arrived on station, we called for our approach. The LSO asked us to make a low pass so he could confirm the gear were down. All this because of a stupid microswitch!

We made our low pass, and the LSO informed us everything looked good and cleared us to bring it in. As we engaged the cable, the plane began veering to the left, and I thought it was a slightly off-center arrestment. At that moment, we heard the frontseaters ask, "What was that?" followed by a tower call, telling us that something had flown off our aircraft at touchdown. The LSO also saw something leave our plane as we hit the deck. As this took place, both of us backseaters looked out the canopy in disbelief. Had we just seen one of our front nosewheels come flying out of the sky and land on the right side of the runway? We watched it shoot ahead as we slowed from the arrestment. The wheel continued to roll down the runway about 1,000 feet until it finally stopped next to an unsuspecting coyote. We couldn't believe it. One of the frontseaters commented, "For a second there, I thought we had lost a hubcap."

As the engines were shut down and the crash crew arrived to pin the gear, we climbed down to assess what had happened. What we saw was one left nosewheel missing and the

BUST!

Photo by Ted Carlson
Photo manipulated

right wheel straining under the pressure of a 45,000-pound Prowler.

Several hours later, the nosewheel was replaced, and we proceeded to Las Vegas. Looking back on the situation, I realized how impatience could have caused a major mishap. Had we not taken the arrested landing, we could have veered off the runway on touchdown and severely damaged the aircraft. We had taken our time and followed NATOPS. We underestimated the seriousness of our problem when we dismissed our lead element. We are taught as students to maintain section integrity and assist as needed during a wingman's emergency. Our wingman could have spotted something wrong under our aircraft and helped us determine the magnitude of our emergency. Instead, we assumed it was a microswitch malfunction, common in EA-6Bs, and sent them on their way. We had discussed making a normal landing since we indicated three-down and locked, but we chose to stick with the checklist.

NATOPS procedures are there for a reason, and impatience is never a good reason to deviate from them. Experience in the cockpit overrode impulse. Gamble in Las Vegas but not with your life.

Lt. Rodgers flies with VAQ-134.

What Ship's Radar Blind Spot?

By Lt. Steve Bellack

Our air wing was participating in a carrier-deck certification off the coast of sunny Southern California. We were attempting to maintain currency while the test pilots worked the Mode 1 approaches. It had been nine months since anyone in the air wing had done a night-carrier landing, and it was also the first time we flew IFLOLS (improved fresnal lens optical landing system, a.k.a. the ball) at the ship.

Anyone who has flown off the coast of Southern California is familiar with the overcast layer from 800 to 1,500 feet. On the first night of carrier qualification, everyone launched and entered the marshal stack for 20 minutes of comfort time. The night requirements were two touch-and-goes and two traps. My first pass for the evening on the new IFLOLS lens was SRDIM HIC-AR (stop rate of descent in the middle, high in close at the ramp) for the bolter. Everyone seemed to over-control the new sensitive lens (not many 1-wires that night). My next pass was an uneventful (OK) 4-wire. After waiting in the daisy chain to reach the catapult, I launched off into the bolter pattern. After another Hornet flew his touch-and-go, approach told me to climb to angels 1.2 and turn left to the downwind heading. I commenced my turn, level at 1,200 feet.

He told me he never saw my aircraft; he had only heard my engines.

When I was on downwind (approaching abeam), the controller-under-training called, "Four zero one, say altitude."

Aircraft 401 responded, "Angels one point two."

Immediately afterward I heard, "Four one five, say altitude."

I replied, "Four one five, angels one point two."

Both 401 and I wondered why they had asked. They should have known our altitude, because we were under positive IFR control. Five seconds later, I saw red flashing strobes under my aircraft (remember, at 1,200 feet we were IMC). I looked down and saw the top of a Hornet, approximately 50 to 80 feet below. I immediately climbed and told the controller an aircraft had just flown underneath me, and I was climbing to angels 1.5. The controller-under-training then told 401 to climb to angels 2.0 and for 415 to descend to angels 1.2. I continued to climb and prayed 401 would stay level. Finally, the controller we'd had during our cruise took over and told me to climb to 2,000 feet and told 401 to remain level. I finished the night with two touch-and-goes, another bolter, and two more traps.

After landing, I met with the pilot of 401. He told me he never saw my aircraft; he had only heard my engines. I told him I looked at my altitude when I started climbing, and I was actually at 1,280 feet instead of the reported 1,200 feet. Had we been co-altitude, we probably would have collided.

Photograph by Matthew J. Thomas

The next day, we discovered 401 had rogered the call to 415 to turn downwind, but no one caught it at the time. When the tape was replayed, you could break out 401's call in the middle of 415's. The pilot of 401 realized he had made a mistake that led to the near-midair.

We wondered why the controllers never said anything to 401 after his touch-and-go. The controllers knew he was airborne. Since they waited until after his touch-and-go to talk to me, the controller should have called, "Four one five, turn downwind, break. Four zero one, continue straight ahead and climb to angels one point two." The next point would be the controller asking our altitudes just before we nearly hit. He must have seen the impending collision; however, he either didn't know what to do and froze, or his supervisor was not supervising very well. Finally, we talked with one of the officers in CATCC, who said the ship had been operating on its third back-up radar system that night. I didn't know they had a third back-up system, but if their systems were degraded, they should have told me.

CATCC's restricted radar coverage ahead of the ship (blind spot) requires aircrew to exercise good lookout doctrine upon departure or in the bolter pattern within a two nm radius ahead of the abeam.

This doctrine is difficult to comply with in the Southern California operating area because of the overcast layer. How many pilots know about this blind spot? We polled our ready room, and just one person knew about the blind spot. He knew about it only because he conducted a JAG investigation 10 years earlier on a similar scenario that ended in a fatality.

Lt. Bellack flies with VFA-147.

I Can Hack It!

By Lt. Duck Wattles

Even two hours after the incident, I still didn't fully realize how close I had come to giving my wife the benefits of my SGLI policy. Let's step back to the night before to see the full story.

As a junior ECMO with just over a year in my first squadron, I thought I knew my limits. If placed in a challenging spot, I could hack it. Then I was placed in that spot. The flight schedule was published, and there I was, briefing and leading a low-level flight early the following morning. The pilot, of course, was the new XO.

When I tracked down the Ops O to question why no one had told me earlier about the flight, he cleared it up by saying, "Yeah, we had to change a few things from the weekly planner. I thought you would like a good deal. You're not turning this down, are you?" Nothing like a good veiled threat to back down a JO. I hadn't flown with the new XO yet, so I thought this was my chance to prove my mettle. I also hadn't flown a low-level since the training command (18 months earlier), but since this was an IR route, and we would be flying no lower than 1,500 feet AGL, there were no more issues to bring up. I pulled a low-level chart from the squadron chart file and planned as much as I could until 2200.

I arrived early to get weather and NOTAMS and to clean up any other [illegible]. The first problem arose [illegible] weather for the [illegible]. It was obvious the primary route was [illegible] day, but ops had a [illegible] situations like this. Switch plans, [illegible] switch charts. Although the chart for the backup IR route was [illegible], it did not have the altitude blocks annotated on the TPC strip portion. The XO pointed out in the brief that if we went IMC on the route, it nearly would be impossible, in the heat of combat, to look at the photocopy from AP-1B (glued to the cover of the chart) to find the top-of-the-altitude block. He told me to annotate the TPC strip portion of the chart with the minimum and maximum altitude for each leg, but in the confusion, I forgot to do it.

So here I was doing my first low-level in 18 months, in bad weather, with an unfamiliar crew, with only a few hours sleep. Yep, I could

Illustration by John W. Williams

hack it! We launched 10 minutes behind another Prowler doing the same mission. We received updates over base frequency about the exact locations where we soon would be.

The first part of the route is off the coast of southern Washington, where we descended from 17,000 feet. The weather was predominantly VMC, but as we looked over land, conditions worsened. As we pressed in, we got frequent weather updates from the crew 10 minutes ahead. Just as we crossed the coastline, they called, "Hey guys, this weather isn't going to work. We're leaving the route at point echo."

Thinking we would do the same, I answered, "Roger, thanks for the update," just as we approached a mass of low-lying clouds on the route centerline.

I felt the XO's eyes on me when he said, "Well, are you going to call center?"

As I tried to think of what I was going to say, we entered the cloud mass. I could hear the tension in his voice when he asked me what the top of the block was. I scrambled with a chart that still was largely unfamiliar to me and tried to discern what the ground elevation was under our jet.

A few seconds later, he asked even more urgently, "What's a safe altitude around here?"

Flabbergasted, I started a new search for a route elevation that would keep us clear of any obstacles that might loom ahead. As the pit in my stomach grew tighter and tighter, he executed a three-G pull. We broke out of the clouds and coordinated a new flight plan, with an instrument approach at Portland, before returning to NAS Whidbey Island. Finally, catching up with the aircraft, I tried to replay the events from the first part of the flight as we made an uneventful recovery.

It wasn't until the debrief when we reconstructed our flight path and replayed the chain of events, that reality sunk in. As we approached the clouds, the pilot was trying to get me to assert myself as ECMO-1 in coordinating our departure from the IR route with ATC. He had waited too long, and I didn't take the hint. We were wings level at 1,500 feet, just below the 2,000-foot top of the altitude block for the previous over-water leg when we went IMC. When he asked for the top of the block, I didn't understand what he wanted. During the debrief, he had told me that, from the second he executed the sharp pullup, the LAWS (low altitude warning system) tone started going off. Surprised, I looked at the back-seater to see him slowly nodding his head. I was more shocked to hear the radalt had bottomed out around 250 feet AGL, in the climb, in IMC. A quick review of the IR route revealed a 2,200-foot peak on centerline where we pulled off the route. We had been seconds away.

Many CRM and ORM lessons learned can come from this. Don't try to perform beyond your level of experience. "I thought I could hack it," is not what I want written on my headstone.

Planning a high-intensity training event is just as important, if not more important, than the actual flight. I should have been intimately familiar with every aspect of the route of flight. When you're traveling 7 miles per minute at low altitude in uneven terrain, there is no time to search for critical information printed in a microscopic font.

Finally, we've all heard that a direct suggestion from the CO or XO is equal to an order. When the XO (who has more than 3,000 flight hours to back up his ideas) suggests adding pertinent information to the chart, failure to follow through may result in disaster. Fortunately for three aviators, this flight didn't.

Lt. Wattles flies with VAQ-133.

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I arrived early to get weather and NOTAMS and to clean up any other details. The first problem arose: typical, poor flying weather for the great Northwest. It was obvious the primary route was not a player that day, but ops had a backup route scheduled for situations like this. Switch plans, switch routes, switch charts. Although the chart for the backup IR route was chummed, it did not have the altitude blocks annotated on the TPC strip portion. The XO pointed out in the brief that if we went IMC on the route, it nearly would be impossible, in the heat of combat, to look at the photocopy from AP-1B (glued to the cover of the chart) to find the top-of-the-altitude block. He told me to annotate the TPC strip portion of the chart with the minimum and maximum altitude for each leg, but in the confusion, I forgot to do it.

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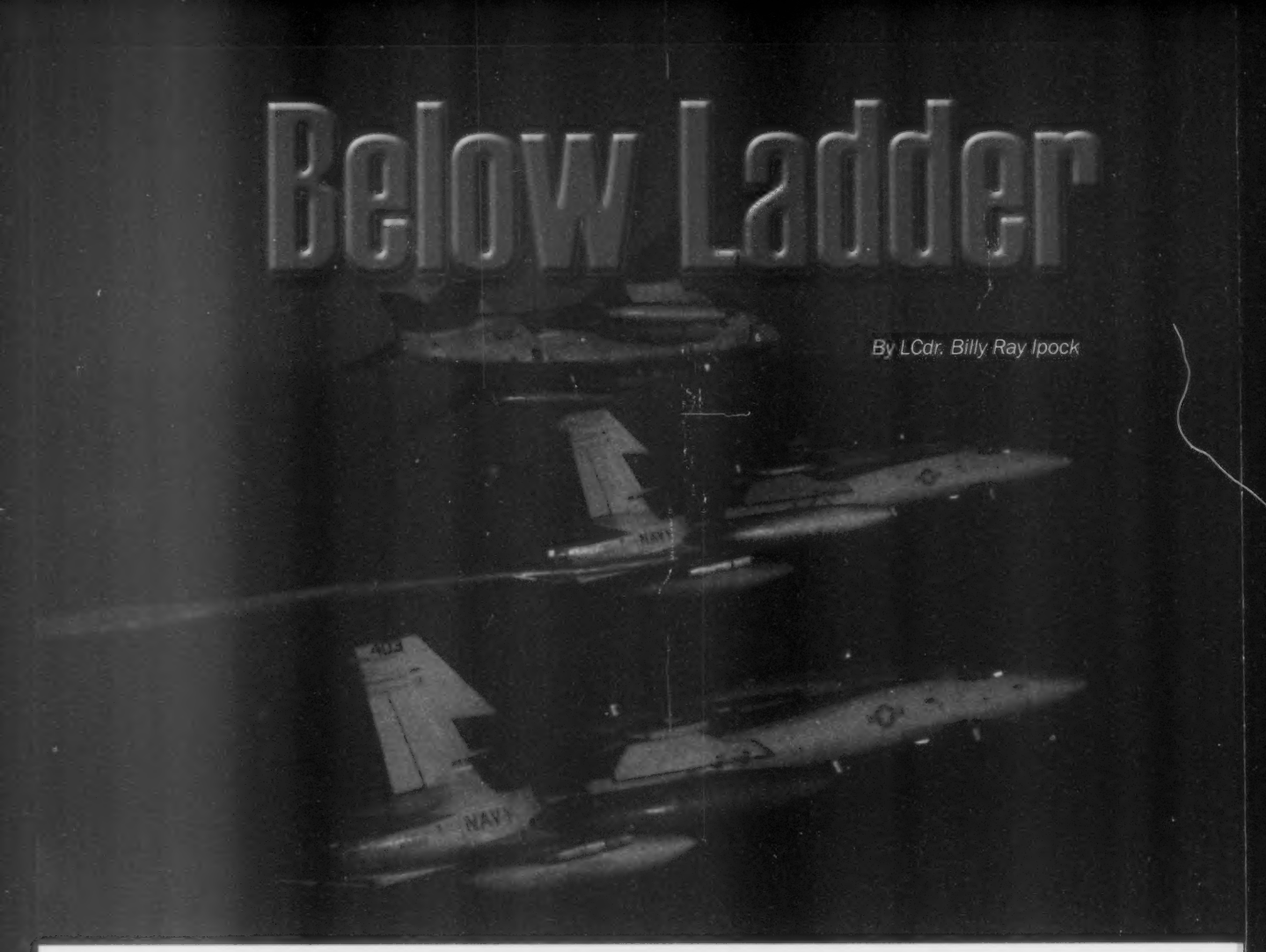
Lt. Wattles flies with VAQ-133.

Below Ladder

By LCdr. Billy Ray Ipock



We were in the Persian Gulf, about two months into deployment, and scheduled for a night-bomb-smoke proficiency mission. It was a nice and short, Hornet-friendly, 1+15 cycle. A look at our planned fuel ladder showed we should have 2,000 pounds of fuel to play with.

We cleared our planned release area and dropped our smokes. As I broke into the pattern, I made a cursory check of my fuel state (for those of you who don't fly Hornets, we do that a lot). It showed only 1,000 pounds of mission gas. I was nose-up and left-wing-down, so I figured the tanks weren't reading accurately. I'd check it again when we were wings level.

I approached the roll-in point and saw one smoke burning in the water. Our SOP requires two smokes for reference when dive bombing at night, so we switched to our backup plan of level FLIR deliveries. I told my wingman to extend four miles. At wings level, one-G flight, I could recheck my fuel and fly the pattern at max-conserve if necessary.

As I turned inbound for the first run, I was busy trying to get my FLIR onto the smoke and get my release solution. I didn't check my fuel state until off-target. When I did check it, I was right on ladder. Something was wrong, so I checked with my wingman and confirmed he was 1,200 pounds above me. The hair definitely started to stand up. I had ham-fisted away all my gas and now had to choose to drop the rest of my bombs (and possibly be below min ramp fuel on the ball) or go to max-conserve altitude and not complete the mission.

I decided to make one final run at max-conserve in the pattern, release my remaining bombs, then climb to max-conserve altitude and hang on the blades while my wingman completed his runs. This would put me 500

and Going Lower

pounds below ladder, which I could make up in the descent if I timed my push perfectly. I would call the ball with 4,500 pounds, which was SOP for minimum ramp fuel. Certainly, 4,500 pounds is not optimum, but if it wasn't enough, it wouldn't be the minimum, right?

I managed to release my bombs and climbed to 29,000 feet. I looked down and did a quick double take—I was 1,500 pounds below ladder. OK, time to 'fess up and have someone work on getting me some gas. I started to double-check my ladder numbers just as my wingman finished his last run and got a tally on me with his goggles. He called on the radio to tell me that I was really conning. Then the big light bulb came on: I had a fuel leak.

He joined up and confirmed fuel was streaming from my right engine AMAD door. We quickly calculated I was losing 1,000 pounds every 15 minutes. I told Strike I would be two-point-five on the ball because of a fuel leak and called for a rep. The rep went through NATOPS for a fuselage fuel leak. It stated that if you can determine which engine is leaking, push the fire light and shut down the engine. It also has a big warning that says if you shut down the wrong one, they could both flame out. I checked all my instruments, feed quantities, and other items to confirm where the leak was coming from. Nothing. The only symptom was fuel coming from my right AMAD door. We decided a dual-engine flameout at night was probably not a good thing. Since the jet was behaving normally, I kept both engines on line.

I pushed for early recovery. I was holding at 2,000 feet, 10 miles behind the boat. Even after a long idle descent, I estimated my ramp fuel at 2,200 pounds (2,300 pounds below minimum). After what seemed like an eternity, marshal called and told me to commence immediately. I checked my fuel quantity every 30 seconds, telling anyone who would listen. We were operating blue water, but a divert was available. Al Jaber in Kuwait is about 180 miles northwest, but there was no way I could get there, even without the leak.

The fuel seemed to be departing my aircraft at an even faster rate, and just as I tipped over, CATCC broke off my approach because the deck wasn't clear and vectored me to a tanker. The S-3 was in position, at my two o'clock, at a mile. I quickly plugged and he squirted me 2,000 pounds of JP. With 4,200 pounds of gas, I began to unclench a bit. My voice dropped about two octaves. CATCC vectored me around for the approach, and, about five minutes later, I called the ball with 2,600 pounds (yes, the loss rate had increased). As soon as I trapped, it seemed like everyone on the boat with a yellow wand frantically signaled for me to shut down. I finally got the motors secured, and they towed me from the landing area. When I got out of the jet, I saw a long streak of fuel on the deck from the landing area to my spot. The fuel-spill crew was frantically trying to clean the mess.

In the ready room, we watched the tape of my recovery, and it still amazes me how much fuel was coming out of that airplane in the wires. Postflight inspection revealed the O-ring on the main-fuel-line coupling to the fuel control had failed.

This incident ended without any serious damage and provided some lessons learned. First, know what your fuel should be. The excessive fuel-burn rate should have tipped me off earlier that something was wrong. Second, if you think you have a problem, 'fess up early and completely. I could have decided to get extra gas airborne much earlier. Finally, crew coordination in a single-seater really pays off. My wingman had seen me conning from early in the flight, but I didn't know that, and he didn't know that my fuel was disappearing at an alarming rate. If we had communicated a little more effectively, we may have identified the problem much sooner and kept more of our options open.

LCdr. Ipock flies with VFA-137.

LOW Fuel and Ever

By LCdr. Doug Desrochers

As a new P-3C patrol plane commander, I was tasked with organizing a cross-country flight to Hill AFB, Ogden, Utah. Although I was the second most junior of 10 qualified plane commanders on the manifest, I signed for the plane since I had done all the legwork for the trip.

Hill AFB was forecasted to have a ceiling at 2,000 feet with unrestricted visibility, the PAR (100 feet and one-half mile) was down, so the higher ILS mins of 200 and one-half applied. Our chosen alternate was Salt Lake International, forecast to be VFR. On our arrival handoff, the controller reported Hill to be totally obscured with visibility one-sixteenth of a mile and calm winds. How could the weather guessers be off so far? Salt Lake International was 10 minutes away, but there were 20 planes holding overhead, trying to get in, with weather just as bad.

We had fuel planned to meet the requirements of 3710 (take-off to destination initial approach fix and to an alternate plus 10 percent or 20 minutes at maximum endurance at 10,000 feet) with not a drop to spare. With the weather forecast being good, we hadn't considered additional diverts. We scrambled to look for other options. In the back, a handful of the other pilots grabbed some charts and started looking for suitable fields. Meanwhile, we foolishly decided to try an approach at Hill: As a multipiloted aircraft, we could shoot approaches at our destination. We were marginal on alternate-fuel requirements. I never had been skunked at a field before, even after a recent six-month deploy-

It was a small, uncontrolled field with 100-foot-wide runways. The Orion's wingspan is 99 feet, 8 inches. Great.

ryone's Snowed In

ment to Iceland. We commenced the approach, and, as we hit our decision height, we could see patches of ground but no runway environment. During the waveoff, approach told us the PAR now was up and asked us if we'd like to give it a shot. We already were below our desired on-top gas of 8,000 pounds, but the guys in the back hadn't found what they considered a suitable alternate, and we did see the ground on the last approach. So, why not?

Another dumb mistake. This time, at the 100-foot decision height, we saw nothing. Turn the sweat pumps to high. OK, now what? We were low on gas with 7,000 pounds, well below our on-top requirement, and looking for help. Of course, we still had enough gas for an hour at loiter, but the Orion community is conservative, and 6,000 pounds is considered minimum fuel for flight. Approach passed us to a military controller who understood our problem. He told us a Beech twin recently had reported VFR over Wendover, Utah, 120 miles to the west. We looked at the charts and saw that the runway was long enough (8,000 feet). It was a small, uncontrolled field with 100-foot-wide runways. The Orion's wingspan is 99 feet, 8 inches. Great.

We approached the field with a little less than 6,000 pounds of gas. We could see that Wendover recently had received quite a snowfall. In fact, there still was a snowplow on the runway which only partly had been cleared. We could not reach anyone on UNICOM and couldn't land with the plow in the way, so we dropped our gear and orbited at pattern altitude, hoping someone would get the picture. Sure enough, a pickup drove out from a building toward the tower. Shortly after, we got a radio call asking our intentions. We told them to get the plow out of the way so we could land. We watched the truck speed out to the runway to tell the driver to move. The UNICOM voice also informed us the precipitation had begun as freezing rain and turned to snow. There was a solid layer of ice beneath the two feet of snow.

We briefed contingencies and then set up for the landing. I asked our much more experienced pilot-training officer to sit in the copilot seat for the landing. As we passed through the 90 and rolled into the groove, the last words spoken by my copilot were, "Doogie, I'm glad I didn't sign for this plane."

It was certainly one of the best landings I ever had. I am sure fear had a lot to do with it. Centerline control was dead on. It had to be, since there were 4-foot snow banks on each side of the runway, which, by the way, hadn't even been plowed to its full width of 100 feet. Despite the glare ice, we stopped with 500 feet of runway remaining; you gotta love reverse thrust! We did a 180 at the end of the runway, since no taxiways had been cleared. The ice made it easy to rotate. The first guy down the ladder busted his butt, and I kissed the ground. At shutdown, 5,200 pounds of gas were onboard.

Our friend in the pickup showed up and said, "I've never seen a plane that big in here before." He eventually asked us how much gas we wanted.

"How much will a truck hold?" I asked.

"Twenty one thousand pounds," he replied. Ka-ching, I could see the dollar signs in his eyes.

A few hours later the weather hadn't cleared at Hill, so we decided to fly to Moffett Field, instead. There are a ton of lessons to be learned here, but this whole goat rope could have been avoided if we had called Metro en route. Take five minutes to update the destination weather–it doesn't cost anything, and it may save you trouble and anxiety. This is especially true on long cross-country trips.

LCdr. Doug Desrochers flew with VP-10.

Make a Decision

By Lt. John Hellmann

"Lieutenant, I think we're about to lose our aft transmission!" With this ICS call from my crewchief, I was thrust into the definitive helicopter-aircraft-commander scenario. For those unschooled in the transmission system of the venerable H-46 tandem-rotor helicopter, we have two transmissions. They are not backups for each other. Without one, you no longer are flying, or doing much else on this earth. Over water, 10 miles from shore, the question was more "when" than "if" we were putting the bird in the water.

Following the onset of a horrendously loud noise, the crewchief unstrapped and walked aft to investigate. Before getting halfway, a wall of fluid started pouring out the aft-transmission area, and the level of noise increased. He reported this information over ICS and returned forward to prepare for ditching.

I had been here before, in my head. I knew the NATOPS emergency procedures cold. There were seven indications of imminent transmission failure. It may sound hard to believe, but a loud horrendous noise and the loss of fluid were not among the big seven. Furthermore, the NATOPS called for slowing to 65 knots. I wanted to fly as close to shore as possible since it was only 10 miles away. At 65 knots, it would take 10 minutes. The question was how much time was available before we had to put it in?

My prepared answer was easy: I would wait for a secondary indication from the big-seven list. In the cockpit, though, a string of doubts entered my head. All the sea stories about the crews who tried to stretch out that last mile, only to plunge into the ocean on short final, raced through my mind. Whenever I heard about those ill-fated crews, I swore it never would be me. I would be smart enough to put it in the water while I still could.

I went with my plan to wait for one more indication, and my gut instinct said it was not yet time for a swim. We were 10 miles from land, and flying at 65 knots was going to double our time over water. Once the fluid was gone, there was no telling how long the transmission might work. With this logic and with the entire crew agreeing, I deviated from NATOPS. Speeding up to 120 knots and making a beeline for the runway, I declared an emergency. The copilot and crewchief completed the ditching checklist, and each of us hawked the transmission gauges for the next five minutes.

Two miles short of the runway, two caution lights illuminated and extinguished. However, they were not transmission lights. They were the control boost and No. 2 automatic-flight-control system (AFSC) caution lights. We all breathed sighs of relief when we realized our problem was not the transmission. All I could think was, "How could I be having two major failures at the same time?" None of us even thought to read the hydraulic-pressure gauges.

I executed a running landing and shut down on an adjacent helicopter pad. Following much cursing of the wretched aircraft that tried to take our lives, we walked to the aft-cabin area and saw hydraulic fluid.

We had misdiagnosed the emergency to the point of almost ditching. Even though we had discussed the situation and unanimously decided on a course of action, we had been wrong in our analysis. From the start, we had focused on the transmission, never considering a different possibility. When the crewchief heard the noise and saw fluid, he assumed it was from the transmission. When faced with conflicting information on the caution panel, I ignored it.

Further investigation on deck revealed our utility-hydraulic reservoir was empty. The noise came from the cavitating hydraulic pump. We failed to address the dangers associated with a failed utility-hydraulic system. Had we started our hydraulic-driven auxiliary power unit, as called for in the ditching checklist, we would have aggravated our situation with a possible APU fire. Had we flown at 65 knots as called for by NATOPS, we would have doubled our time over water and risked a fire or loss of hydraulic control. Had we ditched due to imminent transmission failure when we still had more time to fly, someone might have died.

We tried to find a bright light in our mistake. We had taken limited information and made a life-and-death decision. This is what we are trained to do. Had it been an actual transmission problem, we were prepared. Thanks to simulator training and qualification boards, I had a plan of action and followed it. I stuck with what I knew, which was to watch for secondary indications. For now-obvious reasons, there were none.

My copilot, with a whopping 17 hours in model, was the first to identify the faint unusual noise. Even though he was the only one to hear it, he persisted until we knocked off the training scenario. This led to immediate action with the onset of the clearly audible howl.

Paradoxically, my assertive copilot was not prepared for ditching. As he executed the ditching checklist while I flew us in, he missed step two, which called for the starting of our hydraulic-driven APU. This omission saved us from an APU fire. We falsely had diagnosed an emergency of greater severity than the one actually at hand. Deterioration of the hydraulic system could have resulted in us ditching the aircraft, just not so soon.

There is little time to think and discuss a plan of action when the ocean is getting closer and closer. Even when we do not have the complete picture, we still have to make a decision.

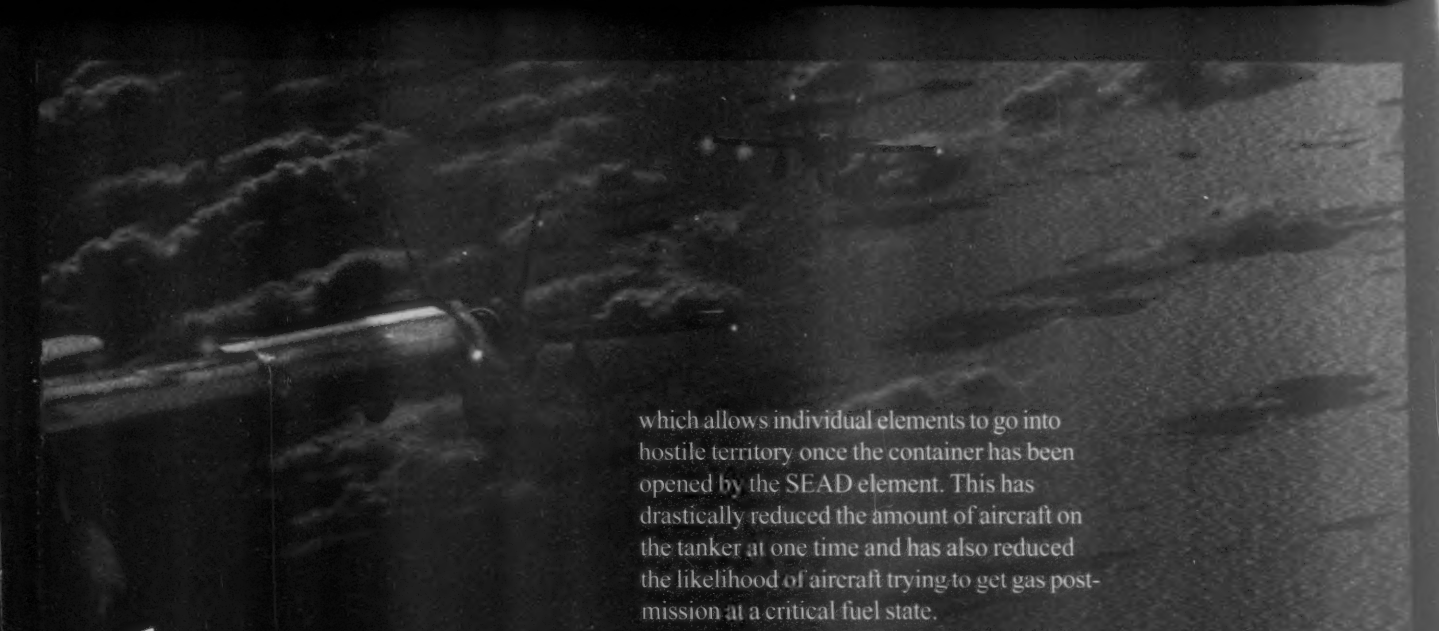
Lt. Hellmann flies with HC-3.

THE DANGER OF NIGHT TANKING

By Lt. Wayne D. Oetinger

Have you ever been to the Arabian Gulf on an Operation Southern Watch (OSW) mission and were worried about the AAA or SAM threat? How about finding your designated mean point of impact at 25,000 feet on the less-than-impressive Nighthawk FLIR? Maybe that pitch-black night trap at the end of a three-hour mission weighs heavily in your mind. These are all concerns the average strike-fighter pilot has to face, but I dare say the potential danger in the nighttime tanker rendezvous is equally significant.

Nighttime tanking on the KC-10 and KC-135 is a subject that hits close to home for all CVW-1 aircrew because of the midair during a heavy tanker rendezvous in the '97-'98 deployment to the Persian Gulf. Flying OSW missions nearly every day in the Gulf during



that cruise, aircrew quickly realized just how challenging nighttime tanking could be. For almost every mission in Iraq, all strike-fighter and SEAD aircraft in the package were fragged for both pre- and post-mission gas from the KCs. To make it even more complicated, one or two of the heavy tankers on the event would become unavailable, which made things more dangerous. The pilots coming out of country with critical fuel states were looking for post-mission gas. Factor in 30 airplanes were trying to get their pre-mission fuel in time for their push, and you have a dangerous environment.

After learning the painful lesson from that cruise, things have improved significantly regarding tanking on the heavies. As an air wing, we do a much better job of briefing the basics of the tanker rendezvous: altitude, bearing and closure. We also limit the number of aircraft on the tanker at one time to five. Other aircraft now wait a mile in trail of the tanker. Even though that can confuse other aircrew rendezvousing on the heavy, it has reduced the number of near-misses. We deconflict our tanking plans better now and have a dedicated fallout plan for the strike fighters if a heavy tanker is suddenly unavailable. Finally, we've taken more of a streamraid type approach to our fam strikes in Iraq which allows individual elements to go into hostile territory once the container has been opened by the SEAD element. This has drastically reduced the amount of aircraft on the tanker at one time and has also reduced the likelihood of aircraft trying to get gas post-mission at a critical fuel state.

Now that we've implemented some air-wing safeguards for mission tanking, what can we do as individual aircrew? To begin with, flight leads need to keep a vigilant lookout for other aircraft while in the rendezvous, avoiding the temptation to join in STT while only looking through the TD box. Wingmen have to maintain a disciplined, mission cross-check time; flying safe, loose-cruise form on the flight lead is the wingman's main priority.

If wingmen have enough situational awareness to recognize when something unsafe develops, they need to speak up on the radio to back up their lead. Some wingmen may feel uncomfortable doing this, and some flight leads even might resent it, but the alternatives are much worse if you put them in perspective. In the debrief, simply go over the comms and decide if it was warranted or not. If it was, kudos to the wingman for the good heads-up in averting a potential mishap. If it wasn't necessary, learn from it, but don't admonish the wingman for having the courage to speak up.

The air wing is responsible for developing and employing safe, standardized tanking procedures while all aircrew must be disciplined in nighttime tanker rendezvous. As a flight lead, be wary when in the join-up and religiously follow those ABCs. As a wingman, fly good form, and don't hesitate to speak up on the radio, if necessary. Everyone involved in night tanking has to remember that it's one of the most dangerous parts of the mission.

Lt. Oetinger flies with VFA-86

THE DANGER OF NIGHT TANKING

By Lt. Wayne D. Oetinger

Have you ever been to the Arabian Gulf on an Operation Southern Watch (OSW) mission and were worried about the AAA or SAM threat? How about finding your designated mean point of impact at 25,000 feet on the less-than-impressive Nighthawk FLIR? Maybe that pitch-black night trap at the end of a three-hour mission weighs heavily in your mind. These are all concerns the average strike-fighter pilot has to face, but I dare say the potential danger in the nighttime tanker rendezvous is equally significant.

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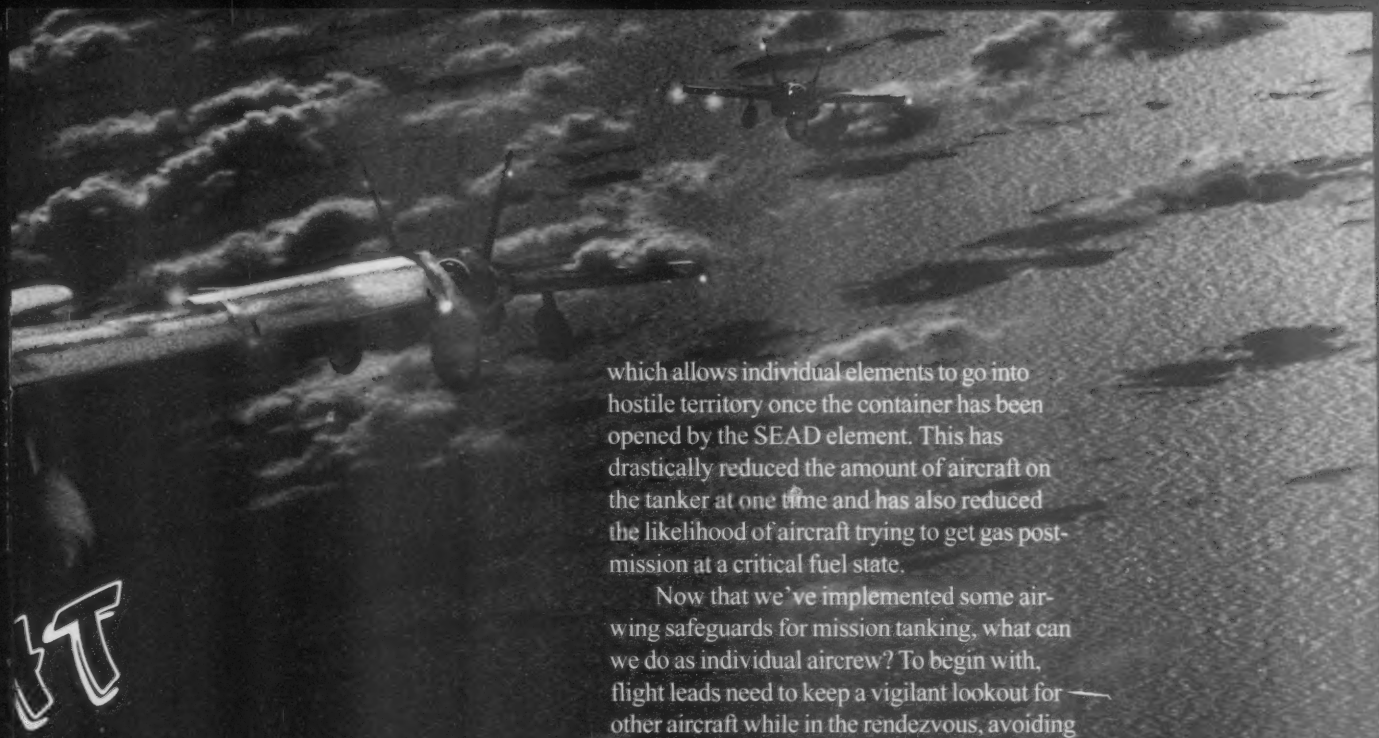

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Lt. Oetinger flies with VFA-86.

Crew Resource Management

Situational Awareness
Assertiveness
Decision Making
Leadership
Communication
Adaptability/Flexibility
Mission Analysis

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Who Says Single-Se
Crew Coor

By Cdr. Kevin Bohnstedt and Lt. Kevin McLaughlin

We were two and a half months into our cruise. We had been in the Arabian Gulf for a month, and everyone was getting comfortable with the operations. I was scheduled for some tactical intercepts, specifically a night 2 v 2 AIC in one of the smaller air-training (AT) areas.

I was flying lead, along with Lt. McLaughlin (call sign Proton), who had just left a three-year tour at Topgun. With such an experienced section, we figured we had it wired. I went into detail on emergency procedures so we would be speaking the same language. Little did I know we would revisit this discussion later.

After the rendezvous, we began our first intercept. My first clue something was awry was halfway through the intercept. Our E-2 controller (King) asked if 302 had a problem. I ignored the question since I didn't hear a response. As the problem began to heat up, I noticed a light at my nine o'clock and stationary, which seemed to be in our AT. I thought the menacing red air forces were trying to swing my wingline.

I then heard King call, "Knock it off. Knock it off. Three zero two, do you have a problem?" I knew there was something wrong. No response from 302 meant he was either NORDO or having so many problems he couldn't respond. Either situation was bad.

I got a vector from King to 302, and I joined. On the goggles, I saw he had one engine at idle or off and the other in burner. I passed this to him over our control frequency and heard two mike clicks. I then asked if he was NORDO. Two more mike clicks. I told him I could hear his mike clicks and to give two for yes and one for no. I asked if he had a problem with his right engine (the one that appeared to be off). Two clicks. I asked if it was off. One click. Trying to narrow down the problem, I asked if it was oil pressure. Two clicks. The left motor actually was in military power but just appeared to be in burner because of the goggles.

I knew he needed to land ASAP. I noticed his hook was down, which was our signal to land immediately, but I asked anyway. He responded with two clicks.

Illustration by Steven Leahy

eaters Don't Need dination?

Coordinating with King and our section of red air FA-18s who stayed in the opposite corner of the area, we began our journey home. I stayed in wing and passed to Proton that I would relay his calls. Two clicks.

The other pilots in our section looked over NATOPS to back us up. King passed to the ship that we had an emergency and would require an immediate landing. We were the last event of the night, and the pull forward would not be required. As we headed back to the ship, the plan of relaying all calls worked like a charm. On first call, I let the ship know about our situation. The ship was in a turn and would be ready by the time we were behind them. After discussions with the rep in CATCC, we agreed I would fly wing, with the lead emergency aircraft coming in half flaps, using both engines for the pass. Proton, an experienced FA-18 driver and LSO, knew the implications of the approach and understood all aspects of the trap. I would separate at about a mile and fly high cover to make sure he made it aboard.

Now came the time to adjust fuel for recovery. While Proton dumped down to landing weight, I held my dump. I didn't want a possibility of two low-state Hornets flying around. To put us both at about the same flying capabilities, I decided to go to full flaps when Proton went to half flaps.

Then my training failed me. Proton flashed his lights twice to let me know he was going dirty. I misinterpreted this to mean "take the lead," which seemed to be odd, but I was flying out in front. Once I figured out what was going on, I got back into position.

The rest of the flight went without a hitch. Paddles knew that Proton was NORDO, and could receive and would respond by clicking. "Call the ball" from Paddles was answered by two clicks, followed shortly by an OK 3-wire.

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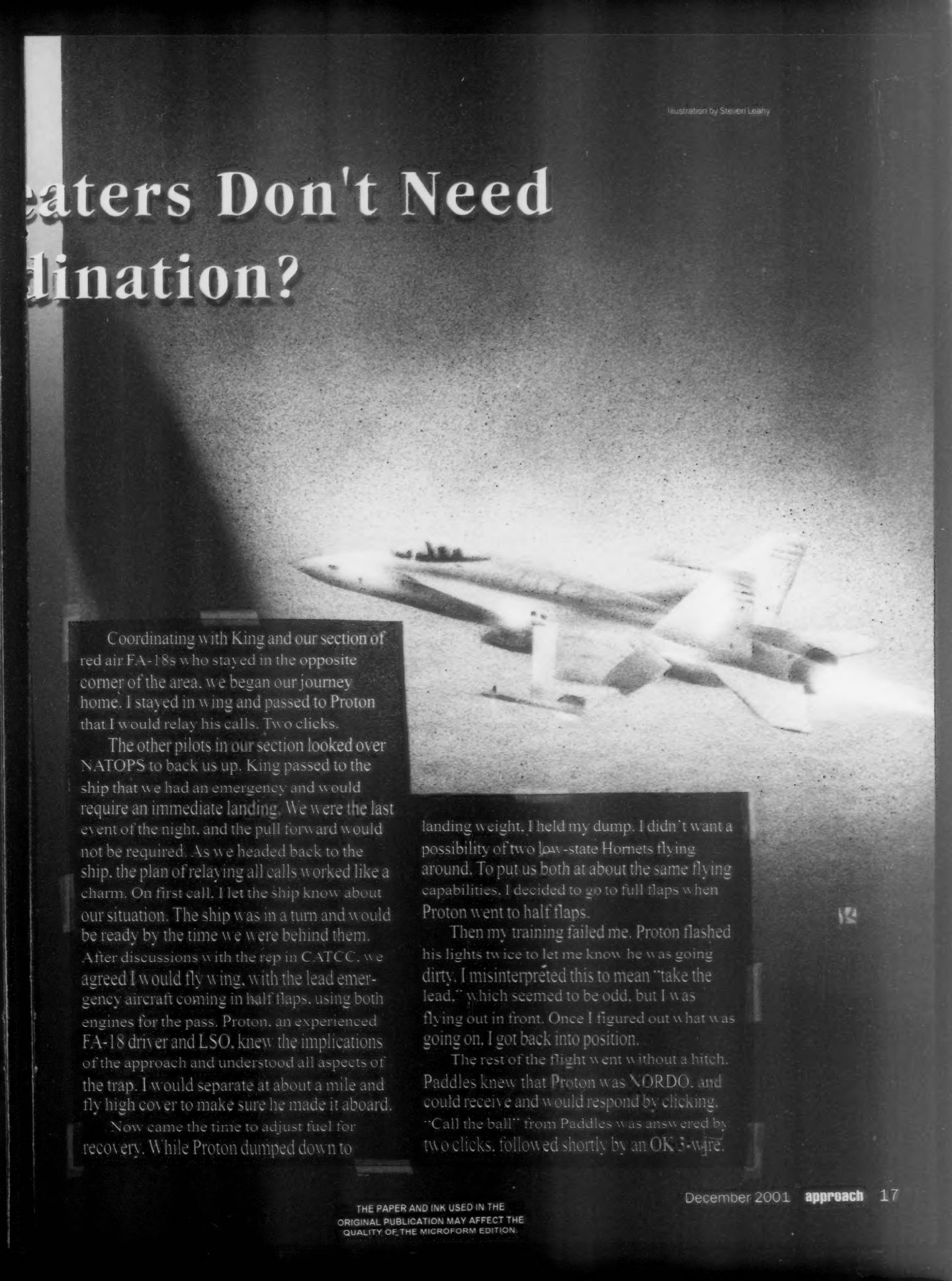

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Proton's only comment about the pass was he didn't recall the speed of the half-flap approach being as quick as it was. I recovered for my OK-3 after I had dumped down and was hooked in.

Troubleshooters found Proton's mask had a short in the mike cord. It had disconnected after the launch. The engine had leaked oil all over the engine bay.

The lessons learned were many. King had awesome situational awareness. They saw the 7600 squawk and then the 7700 and took action. Although we are experienced aviators, we still had some minor communication problems. I could have done better by remembering basic night signals. We train to transition the gear via a voice call. Maybe we should practice the light signals more often. The coordination between our sections was superb. The other section realized they needed to get out of the way and to provide whatever help they could. The emergency aircraft has the lead; do what he wants. In this situation, it would have been easy to direct the action, rather than listen. Just because your emergency aircraft needs to do a low-fuel-weight approach at half flaps doesn't mean you have to. Full flaps will help you fly at lower speeds even with a heavier weight. Coordination, especially with the ship, needs to be done ASAP. With our recovery being the last of the night, they could respond quickly. Time from first emergency to 302 on deck was about 20 minutes—not bad for a separated section about 80 miles from the ship. Keep the controllers on the ship in the loop. Had the information not been flowing, there undoubtedly would have been questions about configurations, time and fuel.

Cdr. Bohnstedt (squadron XO) and Lt. McLaughlin fly with VFA-151.

A CRM Analyst's Take: An Adaptability/Flexibility Portrait

By LCdr. Mike Reddix

CRM is a set of interrelated skills, and just like the brush strokes of a masterpiece, they work together to form a pleasant reality. The reality in this case being an OK 3-wire by a wingman who discovered he was NORDO with a poorly-performing engine 80 miles from the boat. How did this develop? The airborne controller developed time-critical *situational awareness* (SA). A follow-on, and necessarily *assertive*, "knock-it-off" call by the controller proved to be the wake-up lead needed to get into the game, assist in building an accurate SA picture of his wingman's predicament, and *lead* the effort to establish effective *communication* between all the players (controller, wingman, lead, and the ship). Pilots in the opposing section made a good *decision* to display *functional leadership*. They backed up the other section with NATOPS gouge and allowed them to concentrate on other aspects of their brewing emergency. Good mission planning (*mission analysis* in CRM speak) and training gave this crew a fall-back communication plan that they executed well.

This recovery was the result of good headwork and great across-the-board CRM, and could easily stand on its own merits as an example of any of the seven critical CRM skills. However, the real take-home message from this potential mishap is *adaptability and flexibility*. This section (and other players) altered their course of action based on new information (remember that good SA and assertive communication refocused the section). All of the players acted constructively under pressure and demonstrated leadership (including functional leadership by the opposing section). They implemented a backup plan by using effective communication and making timely decisions. Their real-time SA also indicated successful adaptation to a rapidly changing flight environment. Imagine the final portrait of this mission had each player not adapted to the changes. A failure at any CRM level could have created a domino effect of eroding communication, poor SA, bad decisions and...possibly disaster.

LCdr. Reddix is the CRM program representative at the Naval Safety Center.

Photograph by PHC Johnny R. Wilson

Who Are We?

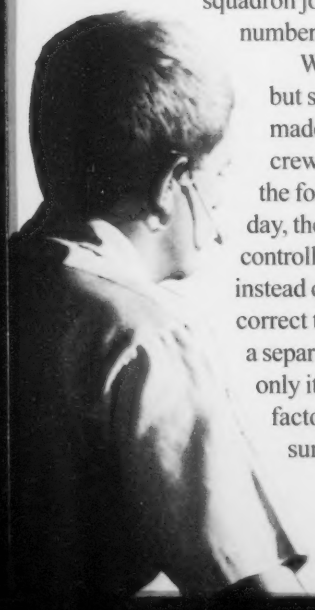
By LCdr. Tony Pham

As controllers, E-2 NFOs understand the duties involved in airspace management. They often control numerous aircraft in confined airspace, and they must therefore have a good sense of situational awareness (SA) of the air environment. However, every now and then, the table is turned, and their SA can disappear quickly if they lose sight of the big picture. The table turned on one of our flights near home field.

We were returning to NAS Point Mugu from a training flight. We had been flying formation from our home field to the Grand Canyon. Since we don't often fly form, we were looking forward to this flight. It would take us for a sightseeing tour of the Grand Canyon, and since the three moles in the back rarely get to look outside, we were all happy to be on this hop.

On the way to the Grand Canyon, Banger 1 was a flight of two. Our lead aircraft was 602, and we were 601. Aside from our ACO getting a little airsick, the flight to the Grand Canyon went smoothly. We saw some awesome scenery, and the front-end even got some practice approaches at a nearby airfield.

Banger 1 now was heading back from the Grand Canyon. It was much better for our ACO on the way back, since we were the lead. Everything was fine until we checked in with our local approach controller. Although we checked in as Banger 1, the weather had deteriorated so we decided to break up the form flight. We used our individual call signs (Banger 602 and 601) and shot individual approaches and recoveries. As the controller assigned us headings and altitudes, another E-2 from a sister squadron joined the pattern; it also had a side number of 602.



What happened next was comical, but seasoned crews shouldn't have made such idiotic mistakes. Since the crew of Banger 602 had been using the formation call sign of Banger 1 all day, they inadvertently had answered the controller's instructions, using Banger 601 instead of 602. Then, before anyone could correct the mistake, aircraft 602 answered a separate controller's instructions, using only its side number. The confusion factor elevated. Banger 601 was not sure if Banger 602 was trying to correct their previous mistake, or if another 602 was answering a separate set of instructions. The controller also was confused on which 602 had answered his last set of instructions. The back-end crews in Banger 602 and 601 had not been paying attention to the radio tuned by the pilots and could not sort out the picture.

Images of Abbott and Costello's classic "Who's on first?" routine flashed in our minds. Visions of a midair, however, meant that it was not really funny. Our pilot-in-command still had some SA left and the presence of mind to get on the radio and said, "Banger 601, squawking 5132, on the 100 radial, heading 130, at 3,500 feet." That one call quickly helped everyone regain their SA. The controller immediately followed with new instructions for everybody, and all aircraft responded with complete call signs (using correct side numbers).

A lesson learned that day was to keep comms simple whenever possible. We should not have used any call sign, other than our side number. Furthermore, always use your complete call sign. We are all part of the crew. The backenders always should listen up to the pilot's radio during the approach phase to help sort out the picture and provide backup. Fly as a team.

LCdr. Pham is the safety officer in VAW-117.

So Why Do We Really Follow NATORS?

By Lt. DeWayne Porter

It was a beautiful, cool, spring morning in Norfolk, and my CH-46 crew was doing para-drops with a local EOD unit. After a preflight and brief with the EOD HRST master, we fired up the bird and were on our way. The drops were scheduled for a small county airfield about 60 miles southeast of Norfolk.

The weather looked like it would cooperate. The sky was clear below 20,000 feet, with haze limiting visibility to 5 miles. After flying for about 20 minutes, we had 25 miles to go. The temperature was rising, and everything was going right, then everything started going wrong.

Our first indication of a problem was a [illegible]udder throughout the aircraft, and the [illegible]H advisory lights for the automatic flight [illegible] system (AFCS) illuminated. It felt like a [illegible]ce from thermal updrafts, a com[illegible]currence when flying at 1,000 feet in this a[illegible], I wa[illegible]n't worried. My copilot was at the [illegible]ols, a[illegible]he thought something [illegible]e was go[illegible] to[illegible]im to slow down to

Photograph by Matthew J. Thomas

be safe but to continue the mission. Less than two minutes later, the same shudder recurred. This time, the No. 1 AFCS-failure light on the caution panel illuminated, along with the master-caution lights. This started to get more of my attention. We followed our NATOPS procedures for a single AFCS failure, and I told my copilot to turn around and head home.

In the turn toward home plate, I noticed the No. 2 engine-oil pressure had dropped to zero. I told the crew we were diverting to Oceana, which was 10 miles away to the north. As we started through our NATOPS procedure for engine-lube-system failure, I reemphasized we were single-engine capable. My copilot steadied out heading north, and I announced over ICS that I planned to secure the No. 2 engine. The crew agreed, and I began shutting it down. I monitored the gauges for a normal shutdown, and things just didn't look right. The engine temperatures (T5) were the reverse of what I had expected. Instead of the No. 2 T5 dropping to zero, it remained around 550 degrees Celsius. The No. 1 T5 was at zero. I knew the gauge readings had to be wrong, because the engine speed and torque gauges indicated the No. 1 engine was operating properly, and the No. 2 engine was shut down. Just as I was about to tell the crew about the problem with the gauges, my copilot said the collective didn't feel right, and it was hard to move. I took the controls and noticed the problem was not only in the collective, but it also was in the cyclic. From my training in the FRS, I recalled this same experience from a training flight when the magnetic brakes froze. This had been simulated in the FRS by pulling the No. 1 AFCS circuit breakers. We checked the circuit breakers and attributed the frozen magnetic brakes to the AFCS failure. I told the crew of the gauge problems and saw numerous other gauges in the cockpit starting to fail, including all the navigation equipment.

This routine mission had turned into a flight with multiple emergencies. I declared an emergency with Oceana Tower and was cleared for a straight-in approach to runway 05. Tensions in the aircraft were high, and it didn't help when the No. 1 control-boost pressure dropped from 1,500 to 1,100 psi. My copilot and second crewman were really getting worried and wanted to land the aircraft where we were. My crewchief and I reassured them we were not falling out of the sky, and that just because things were not going our way did not mean we were in immediate danger. I also reminded them that an airfield with maintenance support was close by, and the most important thing was to remain calm and handle each emergency. The control-boost pressure was still within limits, and we didn't need to land in some farmer's field. If the boost pressure dropped out of limits or if we started experiencing any other control problems, I would get the helicopter on the ground ASAP.

While I focused on flying, the crew returned to figuring out the source of our major electrical problem. With the wet compass as our only working navigation equipment and the visibility hazy, I realized the reason we were required to do magnetic-compass turns in flight school.

In a couple of minutes, which seemed like forever, we spotted NAS Oceana at our 1 o'clock. We soon would be on deck, and the sight of the runway brought welcome comfort. I told the crewmen to strap in for landing—we could continue troubleshooting on deck. All that remained was a single-engine, running landing, followed by shutdown. Dealing with the stuck magnetic brakes and fighting the control pressures, I had a more difficult landing than usual.

During the postflight inspection, we found that oil from the forward transmission had leaked down inside the main distribution panel, shorting out the instrument transformers. Also, the No. 2 engine-oil problem resulted from a broken wire on the pressure transducer, which was unrelated to any of the other problems. The cause of the drop in control-boost pressure was never isolated, but mechs suspected it was related to the No. 1 AFCS failure.

In the debrief, we concluded that diagnosing the problems and following NATOPS procedures kept a bad situation from getting any worse.

Lt. Porter flies with HC-6.

By Lt. Matt Mason

Going MAD

Although the SH-60B is a great aircraft, very reliable and a joy to fly, it is still a helicopter. The question isn't if, but when, a serious emergency is going to happen. As a LAMPS Mk-III helicopter aircraft commander (HAC), I always wondered when it would be my turn in the barrel for one of those there-I-was emergencies. I had my fair share of flashing master-caution lights and minor-emergency procedures, but my helo career was uneventful until midway through my second WestPac deployment on a small boy.

My ship was a *Kidd*-class destroyer, operating in the Northern Arabian Gulf in support of UN sanctions against Iraq. The ship and crew had become a finely tuned war machine. Approaching a thousand hours in model and having all my quals, I was comfortable with the aircraft and single-deck shipboard operations. Our squadron detachment worked smoothly with the ship and contributed to battle-group operations. We patrolled the northern Gulf for suspicious surface vessels. Chasing down date-filled dhows and oil-filled cargo ships was routine, and we were good at it. Best of all, our out-chop from the Gulf was just around the corner.

My crew and I were scheduled for a late-night surface search mission, so during the day, I had the standard sleep-in, workout, and paperwork drill before the brief. The helicopter second pilot (H2P) had above-average aviation skills and was progressing rapidly toward her HAC qualification. It was my job, along with the other HACs, to ensure she would be ready for her

Photo by PH2 Dennis Cantrell
Photo composite by John W. Williams

HAC board at the end of deployment. I told her it was her hop: She would run the mission from the get-go.

The weather looked good, but the moon wasn't very bright. We'd have to return to a ship that didn't have standard LAMPS deck lighting. We reviewed the maintenance book and were told the reeling machine for the towed, magnetic anomaly detector (referred to as the MAD bird) had been replaced. The reeling machine allows the MAD bird to be extended in flight to 200 feet. Maintenance asked us to do an in-flight evaluation of the unit. After the usual preflight night scare on the flight deck, we strapped in, lit the fires, and engaged the head. Tower passed us a green deck, and we were off into the velvet blackness.

For the first hour, we were busy passing contacts to home plate. The H2P reminded me about testing the reeling machine, and the junior aircrewman in back, an antisubmarine warfare petty officer (AW3), concurred. I took control of the aircraft and gave the go-ahead for operation of the MAD bird. I flew straight, level and within airspeed parameters for deploying the MAD. Then came a string of expletives from the back.

My brain went into high PRF, as I scanned the instruments for a malfunction.

"Sir, we have a problem," crackled over the ICS. It was the AW3. I asked what the problem was and received the standard, "Stand by," followed by a momentary pause that seemed like an eternity. Finally, he replied, "Sir, it's just a hung MAD bird." I needed more information. I cleared the AW to secure himself with the gunner's belt and open the cabin door to visually check the MAD. He verified the MAD bird was 40 feet in trail of the aircraft. The reeling machine had hung up during extension.

This is where crew coordination came into play. We decided, as a crew, to reel the MAD back in. If any problems arose, we would stop and consider other options.

The initial attempt to retract the MAD bird failed, and the AW turned off the reel switch. We had two options. One was to pickle the bird near the ship and attempt to salvage it with the ship's rigid-hull inflatable boat (RHIB). This option was discussed with ship personnel. If it had been day VMC, this would have been the optimal choice, but night operations pose hazards that make a RHIB ride a sporty event. A choppy sea and the possibility of losing sight of the MAD bird made this option a poor choice.

Our second option was to bring the aircraft into a high hover over the ship and pickle the MAD bird over the flight deck. Option two was riskier. The flight deck did not have all the handy-dandy lighting that LAMPS Mk-III capable ships have. There isn't a gyro-stabilized heading-attitude-reference system (HARS) bar, which stabilizes a hover over the flight deck. We didn't even have a landing signal officer.

I had to establish a steady, high hover over the deck without visual aids. The plan was simple: We would use crew coordination to reduce our risk. I would fly in on a higher-than-normal approach, and AW3 would ensure MAD cleared the fantail. When steady in a hover, I would lower the aircraft until the MAD bird was on deck. When AW3 informed the cockpit the MAD was on deck, H2P would hit the magic pickle button. Easy!

As we approached the ship, I told my OinC about the plan. He agreed, offered some helpful insight for setting aircraft lighting, and worked on getting favorable winds from the ship.

I ensured the AW knew the calls to make, and I instructed the H2P to back me up on the approach. We rolled onto final and received a green deck from tower. I hovered considerably higher than normal, so high the only visible cue I had was the mast of the ship swaying back and forth. That is when I realized I accounted only for winds behind the hangar. The winds above the hangar and around the mast were more turbulent.

Normally, hovering this aircraft is easy. It almost can be done hands-off—but not this time. I felt like I was on fam-1 at Spencer Field in the TH-57B. Fighting the winds and the aircraft, my calm voice became that of a screaming T-34C IP. I could feel a sense of urgency from the ship's captain (who was monitoring the evolution via the flight-deck camera). I needed to know where the MAD bird was, and I needed that info yesterday. As calm as he could be, AW3 said, "Easy with it" and gave clearance to pickle. H2P gave a quick three-two-one count and hit the button. Once the cable sheared, the rotorwash blew the MAD bird onto one of the flight-deck-edge nets (I hadn't thought about that). I visually cleared the airplane and waved off to set up another approach for landing.

We shut down, debriefed and met with all the players on the ship to discuss our decisions and execution. Were there any alternatives that might have entailed less risk? Second-guessing decisions made in the air, whether yours or another aircrew's, has been happening since Orville and Wilbur flipped the coin. We had worked well as a crew; after all, that's how we train. Our aircrew meshed well with the ships' crew, who helped us identify the risks in our options and provided the expertise to mitigate the risks of the option we chose.

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Lt. Mason is a former SH-60B pilot who recently transitioned to the EA-6B and flies with VAQ-142.

(Almost) Ever
Nee
I Learn

By Lt. Richard Klauer

As I sat in my tiny FFG stateroom, muddling through the final weeks of a counter-drug ops cruise, I realized there are axioms of aviation that, no matter what your experience level, will always hold true. I learned a few of these early in my career as a naval aviator, during primary flight training in the mighty T-34C Mentor. My on-wing, a Marine CH-46 driver, never failed to pass along the truisms of flying, often using colorful language to capture my attention. Here are the translations of his aviation adages and how I have managed to incorporate them into fleet flying.

"What are you doing up there?" My esteemed instructor had his own way of developing the finer points of CRM from the back seat. In multi-place aircraft, the copilot and crew are there to help you, just as you are there to help them.

"Have you even read your NATOPS?" Despite his criticism of my systems knowledge, I really did read my NATOPS. Now that your fleet aircraft NATOPS is about four times as thick as the T-34's, there is plenty of reading to be done.

"Underwater is not the time to inspect your SV-2." Before you walk, make sure your HEED bottle has air and your PRC-90 and the rest of your gear works so you will be somewhat comfortable if you go for an unexpected swim.

"You're preflighting the wrong aircraft." Yes, I did this once. Checking the tail number is just part of the attention to detail

"Fly the aircraft. Don't let the aircraft fly you."

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demanded by every preflight, whether on the beach, at an airshow, or on the dark, cold, rain-slicked flight deck.

"Zip up your pockets." After witnessing numerous near-FOD incidents, this is part of my personal preflight every time I get on or in the aircraft. Extra change rolling around in the engine compartment never did anyone any good.

"Are you going to put the gear down?" Checklists aren't just a fact of life; they are the crux of safety in aviation. Rushing to meet the critical launch, becoming lax and not paying attention in the cockpit have caused more than just gear-up landings.

"Relax and take it one step at a time." When the master caution light or fire light comes on, don't rush to complete the immediate-action items. Take time to determine the precise nature of the problem, then methodically configure the aircraft. When fighting emergencies, speed can kill.

"Knock, knock. That's your ball trying to get back in." Nowhere is solid instrument flying more important than when launching into the inky blackness at sea. A poor scan and lack of proficiency can allow vertigo to seize even the most savvy aviator.

"This hop will be over when we run out of gas." Yes, it most certainly will. Ideally, that time also will coincide with a suitable runway or deck. Trying to stretch the legs of your aircraft can lead to disaster. Hawk your fuel, whether droning around your local NAS or venturing far from Mom on the big blue.

"It doesn't look like it's going to clear up. You're canceled." OK, sometimes bad weather has its benefits.

"Fly the aircraft. Don't let the aircraft fly you." The first commandment of the always-germane rule: aviate, navigate, communicate.

"Where are you going?" Navigate. This is the second most important thing you can do in the aircraft. If you don't know where you are going, you won't be able to get back.

"Think, key, speak." Communicate. Tell your lead, wing or controller what you need and want. This will set you up for success. Keep in mind that comm brevity and radio discipline are essential elements of tactical flying. Just ask the air boss.

Lt. Klauer is a former detachment maintenance officer in HSL-47. His on-wing's whereabouts are unknown.

*Have you heard any other "truisms of flying" in the training command, your first squadron, or later in your career? It may be serious or humorous. Send me an e-mail (*jstewart@safetycenter.navy.mil*) with the classic line and a short explanation, and I'll print it in a future issue.—Ed.*

Photograph by PH2 Darryl L. Wood

SANDSTORM IN SAUDI ARABIA

By Lt. Paul Riehle

Things were becoming routine three weeks into our deployment to Prince Sultan Airbase, Saudi Arabia. A sprawling complex located in the heart of the Persian Gulf sandbox, the base is not a hospitable home in the middle of July. Severe temperatures, no rain, and fierce winds combine for a nasty environment that can drop visibility to nearly zero. Sandstorms in that area of the world, as we soon would learn, are sudden and unpredictable. Within minutes, desert winds of moderate strength can whip up enough sand to shut down operations. For our carrier-based squadron, sandstorms were something we had talked about but had not yet experienced.

The flight was to be a fun, short hop, by Operation Southern Watch standards. We

Photograph by Senior Airman Delilah Castillo

were to take a section of Prowlers 50 miles north of the airbase and conduct jamming runs against the base's Patriot missile-defense batteries. There was an air of friendly competition between the Prowler and Patriot crews to see whose systems and operators were the best.

Forecasted weather was what we had grown accustomed to during our stay in the Persian Gulf: severe clear, light winds, and miserably hot temperatures. Nobody seemed concerned when, by walk time, winds had stiffened to a consistent 10 knots.

The flight went as planned, with both jets taking off in section and remaining in close formation. The mood was light as both the Patriot and Prowler crews did their best in a great electromagnetic duel. After 45 minutes, both Prowler crews had had enough and headed for home. The ATIS weather brief was the same as we had received on deck, except this time it added a benign sounding trailer: sandstorms in the vicinity.

Approach gave us our next indication: This was not going to be a normal landing. Knowing we were near the field, they urged us to return as expediently as possible, since a strong sandstorm was approaching. At 20 miles, we saw the reason for approach's concern. The storm already had hit the eastern edge of the base and quickly was moving west, right toward the runway. Opting to race the storm to the runway, rather than divert or hold overhead until it passed, we quickly coordinated with tower for a short initial and thundered in at 1,200 feet for the break. In the three minutes it had taken us to get to the short initial, the sandstorm had obscured most of the base and was bearing down on the runway.

Approaching the numbers, we soon realized the standard left-hand-break would take us into the rapidly approaching sandstorm. The wall of sand and dust rose off the desert floor up to 2,000 feet. Thinking quickly, ECMO 1 in the lead Prowler asked tower for a right-hand break and signaled the wingman to cross under. Tower's response added the next complication to the flight. In its march toward the field, the storm completely enveloped the tower. Unable to get tower clearance for the non-standard break and still racing the storm, the lead jet cleared the flight for the break, away from the storm.

Both Prowlers had rabid spider monkeys at the controls. They both flew customary approaches, cleared themselves for landing, and touched down just ahead of the storm. The speed and intensity of the sandstorm was evident as we entered it at midfield during our rollout. Swallowed up in the wall of sand, visibility dropped to 50 feet and both aircrews lost sight of each other. After coordinating over the radios, each pilot turned off on separate exits and then parked to wait out the storm. Fifteen minutes after landing, visibility improved to the point where both jets safely could taxi to their lines. Several lessons were learned.

Respect Mother Nature. The speed and severity of the sandstorm took us by surprise. Complacency about the hot summer weather almost turned a fun hop into something ugly.

Make the divert decision early. Diverting may have been the right thing to do. In an attempt to get on deck at our home station, we made a poor decision and pressed the weather. No one in the jet could have predicted how fast the sandstorm would overtake the field.

Good crew coordination and section integrity can make up for bad decision-making.

Lt. Riehle flies with VAQ-136.

Several of our staff suggested that an additional communication option may have been to talk to the squadron representative in the tower.–Ed.

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Stranded at the

By Ltjg. Scott Swagler

H-46s are older than most of the men and women who fly them. The manufacturer's plates are dated mid-1960s. The logbooks, on average, report about 12,500 to 13,000 total hours on each airframe. Four months into a cruise, with a two-plane detachment, recurring problems with such old aircraft become par for the course.

As a second crewman while deployed aboard USS *New Orleans*, I was scheduled to fly on an EOD minex training mission—a good deal for a Gator SAR crew. The flight crew knew one another well and had spent many hours in starboard D together. The mission brief was short; the HAC started it with, "Standard NATOPS brief…," and hit the high points. We then met with the EOD team, talked about emergency scenarios and what they could expect from us, then walked for pre-flight.

The helicopter we were flying that day had its share of chronic problems. The power-management system didn't work and had been disconnected. The check valve on the No. 2 engine's oil reservoir allowed oil to drain back into the engine if it sat for awhile, and the No.1 torque needle always would spin, so the circuit breaker was pulled.

At the end of our preflight inspection, we noted our No. 2 engine oil level was low again, along with a few other minor gripes. We all expected the oil level to come up to normal when the engine was cranked. To avoid overservicing, we made a mental note to check it again once we were up on APU, and we hurried down to get something to eat before our flight.

We manned the helo 30 minutes before launch and waited to be re-spotted before spreading the blades. The pilots moved quickly through the checklist, irritated that we still needed to check the engine oil level. With 15 minutes left before scheduled launch, we were ready to motor the engine. As the helicopters in front and behind us engaged and waited for a green deck, I stood on top of the helicopter and reluctantly told the pilots, over ICS, that our engine needed to be serviced. We called for the troubleshooter (a senior crewman and QAR) standing on the foul line, to put oil into the underserviced engine reservoir.

The pilots did the checklist down to engine start, and the crew chief checked the hoist as I put away the blade tie-down ropes. When the troubleshooter eventually stepped outside the rotor arc and gave us a thumbs up, we had just enough time to make our scheduled launch. The crew chief then took a brief look at the cam-locks on the cowlings to make sure they were fastened. We then turned up.

In the air, the tension in the cockpit seemed to ease, and we congratulated ourselves on the combined effort to launch on time. Twenty minutes later, we jumped the EOD team and established a hover on the other side of the mine shape. They went to work setting their explosives.

When they signaled for pickup, the crew chief talked the pilot down to a 30-foot hover and started hoisting. The last man in the water would wait until the second man was on the hoist before he ignited the time-delayed fuse. From that point, the aircraft would have 10 minutes to recover the last man and reach a safe distance, five miles away. When the smoke started to rise from the fuse, and the last man was swimming toward the hook, the crew chief lost his ICS and motioned me to the door to make the calls.

I moved to the main-cabin door, hooked my gunner's belt to the tie-down ring, and looked for the swimmer, who was about halfway between the helo and the mine shape. I glanced toward the aft rotor to check for salt spray, and, through the gap in the clamshell fairings, I could see the engine oil cap, swinging freely on its keeper chain. I informed the pilot there was a large slick of engine oil down the starboard pylon. The HAC immediately called for watertight integrity and transitioned to forward flight. As the cabin door came up, I tried yelling over the noise of

Mine Field

two engines and transmissions to tell the EOD HRST master what was happening.

The plan was to drop a raft and head back to the ship. After getting a look at the gauges, the pilots decided to make one low-slow pass to drop the raft and jump the team back into the water.

As we approached 10 feet and 10 knots, the 12-man raft went out, followed by the three men. The pilots marked the radial and DME and headed back to the ship. The weather worsened, and it was nearly an hour before the det could ready the other aircraft for launch to return and to pick up the EOD crew. It was sunset when we found the four men through the haze.

Thorough preflight planning, use of ORM, good crew coordination, and good situational awareness helped us overcome a potentially fatal situation. That was seven years ago, and I'm back in the same squadron as a pilot, deployed with the same detachment on another Gator. The aircraft are even older now, and they still develop those chronic problems.

Ltjg. Swagler flies with HC-11.

unset when we found
men through the haze.

Photograph by Sgt. Brook R. Kelsey, USMC

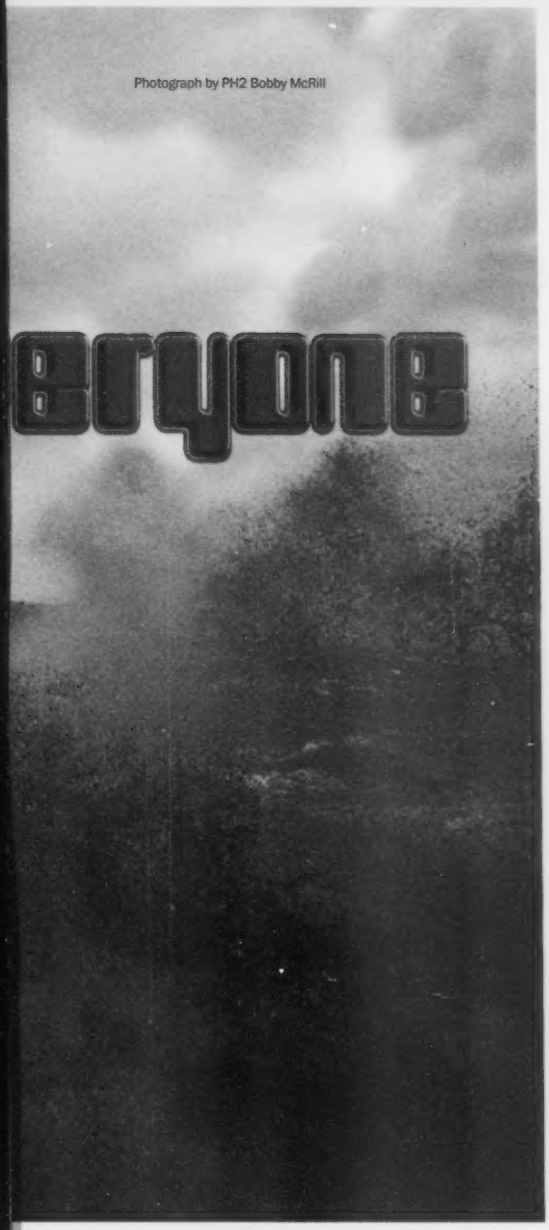
Below Weather Mins for E

By LCdr. Michael Carambas

Our squadron was in the throes of COMPTUEX during winter in the Southern California operations area. The ceilings were falling, and the deck was pitching. As the squadron operations officer, I had been tasked by the air wing to fly our battle group commander (a naval flight officer) in our new mission-computer-upgrade Hawkeye.

The fam flight would consist of the admiral getting a cat shot in the copilot seat, followed by a tour in the combat information center. It would be an opportunity to show him the improvements to our weapons system and the command's enhanced ability to serve as a battle-group, airborne-battle manager. After checking out the back end, the admiral would return to the copilot seat. Our skipper would serve as aircraft commander; he also was the air wing's top-hook aviator.

Case III launches preceded our NATOPS flight briefing, and the metro brief showed the weather deteriorating. Our crew briefed and discussed the requirements for flying with non-



NATOPS-qualified aircrew. One crew member would have to take the admiral to the flight deck to conduct a ditch-and-bailout drill prior to launch. Without ejection seats, you are either parachuting or swimming away from a Hawkeye. We concluded our brief with operational risk management, which included contingencies, conflict management, crew decision-making, and conditions that would keep us from completing the flight.

A junior pilot took the admiral to the flight deck to conduct the ditch-and-bailout training, while the rest of our crew put on our flight gear. As we watched the PLAT for the current recovery, we noticed the ceilings had dropped significantly since our metro brief. Recovering aircraft were calling clara at three-quarters of a mile and not picking up the ball until a half-mile from the ramp. There were some interesting passes during the recovery. I wondered if the weather might make us cancel our flight. Our skipper remained confident we could get the X. We really wanted to show off our new aircraft to the boss.

Once we had finished dressing out, the SDO came up to me and said the air plan had changed. Every event, except ours, was cancelled due to weather. A call to the forecasters confirmed weather around the ship was 250-foot ceilings and half-mile visibility. Our skipper was concerned about the weather, especially since the admiral was not qualified in our aircraft. As a former aviation-safety officer, I felt the hairs on the back of my neck stand. Our plan sounded like one of our case studies during ASO School. I told my skipper about my concerns and said this was an ORM issue.

My CO agreed and tried to contact the CAG to recommend we cancel our flight. Just as CAG was answering the skipper's call, the admiral returned from his flight-deck training. He told my CO, "Sorry, skipper, but I'm canceling our flight. The weather doesn't look that great out there, don't you agree?"

I never saw my skipper so happy to say, "Yes sir, I agree. We need to cancel. We'll reschedule you when the weather's better, right Ops O?"

I was even happier in my answer to the CO, "Aye, aye sir. I'll get with the flag lieutenant and coordinate another flight."

You never should feel pressured to get out the X, even when it means a flight for the battle group commander. As a crew, we not only briefed ORM, but we also used it to control risk. We re-examined external conditions (decreasing visibility due to weather) and internal conditions (lack of aircrew experience and qualifications).

LCdr. Carambas flies with VAW-117.

A Nuggets First Emergency off the Boat

By Ltjg. Robert Wise

I had been in the squadron for a couple of months, and we were on a RIMPAC exercise working up for cruise. I was standing my first alert seven when they called, "Launch the alert seven. Launch the alert seven. Contact eagle on button twelve. Heading three-three-zero."

I launched and was happy with how everything was going. I'd gotten off the deck in seven minutes, climbed to FL240, and talked to the E-2 about a bogey inbound to the ship. I thought about how strange it was to be up here without a lead, alone and unafraid. Then I heard the deedle-deedle on my ICS and looked at a hyd 1A caution light on my left DDI. The light went out but was followed by a hyd 1B light. The hyd 1 pressure was fluctuating between 1,500 and 2,000 psi. I shut down the left engine and pulled out my pocket checklist. The PCL directs you to shut down the engine if the hydraulic gauge is fluctuating. This is because the hydraulic pump may heat up and start a fire. After going through the PCL, I called eagle and told them I had an emergency and was returning to the ship.

I started a slow turn toward the ship and trimmed-up the jet. I was 40 miles from the ship at FL240, our high holding altitude, with about 12,000 pounds of gas. The right engine was at MIL, but the airspeed dropped below 200 knots; I'd never thought about being heavy and trying to maintain altitude on a single engine. Finally, I decided to descend to 16,000 feet, our medium holding altitude, and was able to maintain airspeed.

I called tower and talked to the rep. The ship wanted me to hold overhead as they set up for recovery. In the meantime, the rep and I broke out the single-engine-landing checklist and reviewed it. Then our CO got on the radio, and I updated him. He told me they had decided to bring me aboard single engine and to fly my best pass. I started out of holding and descended to 1,200 feet about 20 miles behind the boat. I dumped gas to max-trap weight and put the gear down at 10 miles. At four miles, I got needles and bull's-eye. At three miles, I started down. All I could think about was getting to a good start and not going low. I called the ball at three-quarters of a mile with a good start. The approach was looking good, just a little high in the middle. Once I hit the burble, the ball started to sag. I went to MIL on the right engine, but it didn't seem to help. All I saw was a red ball on touchdown, catching the ace of course, but I was just happy to be aboard.

Looking back on it, my attitude, as the new guy fresh out of the RAG, was I would always have a lead to depend on and tell me what to do in case of an emergency. Not the smartest attitude but one that many new fleet aviators have. I never thought how the jet would act in close, at max trap, single engine and on a warm day. The settle in-close was a big surprise, and I wasn't sure how the jet would've flown after a bolter. Think about these "What if?" situations before you get airborne. There isn't time to think of all the details while trying to get aboard safely.

Ltjg. Wise flies with VFA-115.

PH Airman Appentice Travis Ross

Classic

"THE KIND REAL AVIATORS LIKE"

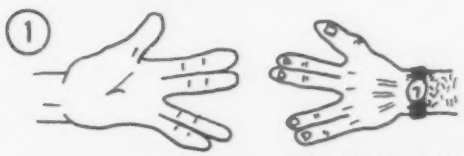
BROWNSHOES IN ACTION COMIX

By Lt. Ward Carroll, VT-86

VF-3.14 finds itself in need of an LSO as "Ragin'" Mike Kagin abruptly drops his letter . .

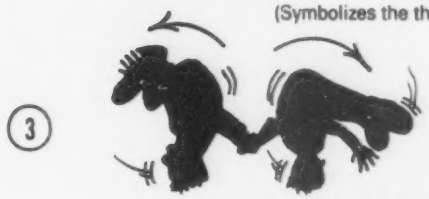
Items in "Ragin'" Mike's passdown . . .

The secret LSO handshake



(Make the spock sign)

(Shake three times)
(Symbolizes the three wire)



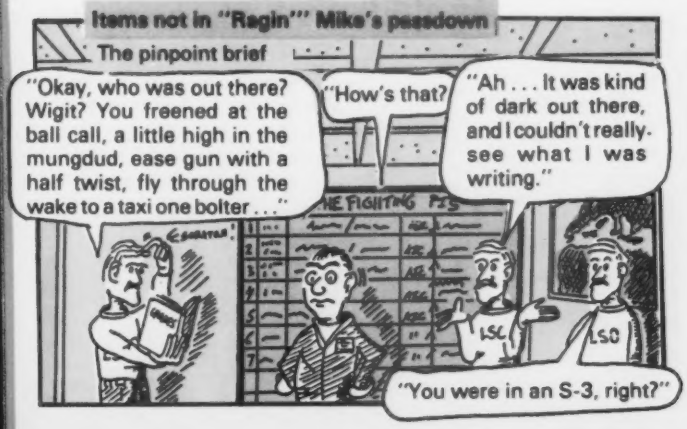
(Both do backflips)
(Real reason for padded area next to platform)

And don't forget daily changing MIC clicks on the ball

The LSO accountability matrix

Items not in "Ragin'" Mike's passdown

The pinpoint brief



The Northern Wedding flex-deck

LSO . . . It's a tough job, but you get out of watch if you do it!

Ready Room Gouge

LSO to nugget after
3rd unsuccessful trap:
"You've got to land here, son.
This is where the food is."

Photograph by PH2 Lisa Marcus
www.safetycenter.navy.mil